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## A NEW HYBRID NYMPHAEA

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During the past two seasons various experiments in breeding water-lilies have been undertaken at the Garden, especially with *Nymphaea* "Mrs. Edwards Whitaker" as a parent, with both interesting and disappointing results in the progeny.

The principal disappointment to the writer at first was the inability to obtain a "Whitaker" type with a viviparous leaf character, despite the fact of using viviparous parents, such as *N. daubeniana*, *N.* "Mrs. Woodrow Wilson" var. *gigantea*, and *N.* "Panama Pacific," reciprocal crosses being made in each case with *N.* "Mrs. Edwards Whitaker." This unusual leaf character present in the later hybrids has originated from the species *N. micrantha*. The desirable factor with the viviparous hybrids is the ease with which the type is perpetuated through the young plantlets which grow upon the parent leaves. Propagation is accomplished when thinning out the leaves during the summer, the young plants being easily cut from the center of the leaves. They are then potted and transferred to the greenhouse tanks for the next season's display. With the non-viviparous hybrids the parent plants must be dug from the ponds in October or prior to frost and placed in the greenhouse tanks until they die down, when they are cleaned to ascertain whether or not young basal tubers have developed. The large-flowered forms of *N.* "Mrs. Edwards Whitaker" always develop extremely large parent tubers during the summer which ordinarily last but one season, and in most instances they lack the small tubers necessary for the next season. To keep up a stock of this lily it is therefore necessary to grow plants in pots during the summer for tuber development.

× NYMPHAEA "MRS. G. H. PRING," PRING, N. HYB.  
(*N. ovalifolia* ♀ × *N.* "Mrs. Edwards Whitaker" ♂)

Up to the present time the only pure white tropical day-blooming water-lily in cultivation has been the small-flowered *Nymphaea flavo-virens* (*gracilis*) native of Mexico. It has been used to advantage in breeding, being the parent of such popular hybrids as *N.* "Stella Gurney," "Mrs. C. W. Ward," and "William Stone,"

but when grown for floral display it is rather disappointing on account of the small size of the flowers. The writer therefore experimented with a view of obtaining a white lily comparable to the present-day horticultural forms. Stock of *N. "Mrs. Edwards Whitaker"* was selected as a desirable parent because its flowers frequently bleach to white with age and also because white forms resembling *N. ovalifolia* appear in the second generation.

During 1919 reciprocal crosses were made between *N. "Mrs. Edwards Whitaker"* and its parent *N. ovalifolia*. A number of seedlings were raised during the winter and planted in the ponds outside. *Nymphaea "Mrs. Edwards Whitaker"* ♀ × *ovalifolia* ♂ resulted in forms of the Whitaker type, while the reciprocal cross, *N. ovalifolia* ♂ × "Whitaker" ♂, showed *ovalifolia* or the white form as a dominant factor. One pure albino form possessing the large Whitaker-shaped flowers and leaf characters was selected as the desired type. It was carefully self-pollinated during the summer of 1920, the offspring producing albino flowers. In 1921 the finest flowers were again selected and self-pollinated, the seedlings again producing pure white flowers but with an improvement both in number and size of petals. By careful selection and self-pollination during the past season all pink and blue shades which dominated the parent flowers have been eliminated. The new hybrid produces plenty of fertile seeds, a factor not evident in most present-day hybrids.

*Description.*—Flowers white, 8–10 inches across, opening for 5–6 successive days from 7 A. M. to 6 P. M. during August, 3–5 opening at one time, extremely fragrant; bud narrowly ovate-acuminate, light green sparsely striped with irregular minute dark purple lines; peduncle terete, rising 1 foot above the water, in cross-section showing 7 main air-canals circled by 15–16 smaller ones; sepals 4-wedged, ovate-triangular, somewhat hooded at the apex, thick, fleshy in texture, outer surface light green, sparsely striped with irregular dark purple lines, inner surface white, greenish white at the base, showing 10–12 nerves; petals white, comprising 3 whorls, the outermost lanceolate, obtuse, 4 inches long,  $\frac{3}{4}$ –1 inch wide, outer surface showing light green at the thickened base, 6–8-nerved, inner whorls pure white, innermost whorl smaller; stamens 120–130, canary-yellow, outer whorls white at the apex, 2 inches long, with appendages ovate-oblong at the base, linear above, inner whorls becoming shorter and narrower toward the innermost, which is linear; carpels 28–

30, with styles oblong, obtuse, introrse, yellow; fruit globose, well filled with fertile seeds; developed leaves narrowly peltate, ovate to suborbicular, 16 inches long by 14 inches wide, with sinuate margins becoming deeper at the base, almost entire at the apex; sinuses overlapping, terminating into acuminate lobes, green on the upper surface, faintly spotted with reddish brown, fading away as the leaves develop, the under surface light green flushed with pink; petioles light brown, measuring 6–8 feet when fully developed.

*Var. marmorata*.—Flowers same as type; leaves light green, irregularly blotched with reddish brown upon the upper surface. This marmoration is transfused from *Nymphaea* "Mrs. Edwards Whitaker."

## EXPLANATION OF PLATE

## PLATE 20

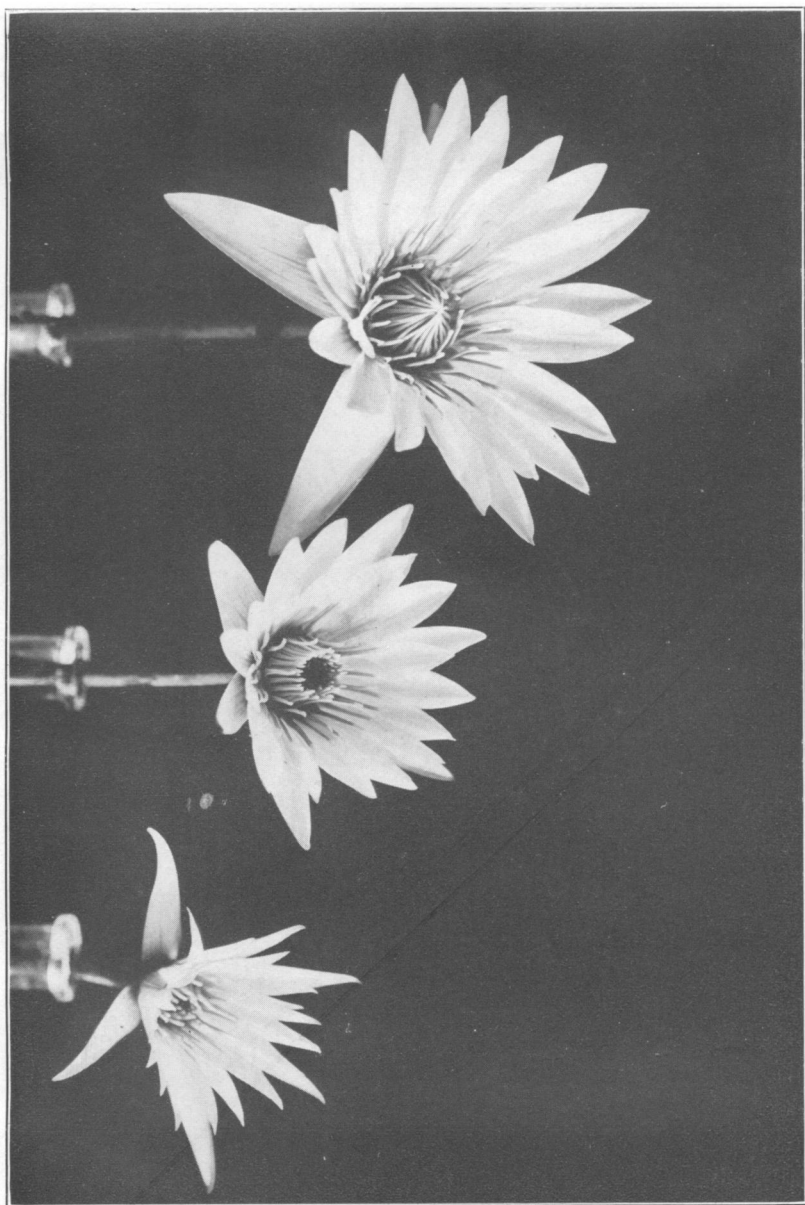
Showing parentage of *Nymphaea* "Mrs. G. H. Pring."

Left, *N.* "Mrs. Edwards Whitaker" ♂, lavender-blue.

Right, *N. ovalifolia* ♀, white, blue-tipped.

Center, *N.* "Mrs. G. H. Pring," albino.

PRING—A NEW HYBRID NYMPHAEA



## EXPLANATION OF PLATE

## PLATE 21

Showing difference between the white *Nymphaea gracilis*, native of Mexico, and new white hybrid, *N.* "Mrs. G. H. Pring."

PRING--A NEW HYBRID NYMPHAEA





## EXPLANATION OF PLATE

## PLATE 22

*Nymphaea* "Mrs. G. H. Pring," growing in the ponds of the Missouri Botanical Garden, St. Louis. Photograph taken August 1, 1922.



PRING—A NEW HYBRID NYMPHAEA